Narrowbanding: Will it Affect Your Jurisdiction?

By now, most local elected officials have probably heard of narrowbanding—a word that threatens to impact the communications systems of their public safety services. But just what is narrowbanding? How do you know what it will, and will not, affect? And, more importantly, what are the fiscal implications?

The short answer is that narrowbanding is the Federal Communications Commission's (FCC) terminology for a process that will reduce the size of radio channels used by many public safety and business systems in the US. The transition to narrowbanding has been mandated by the FCC to occur no later than January 1, 2013. Narrowbanding will cut in half the amount of radio spectrum used each time a radio transmits a message. The FCC's goal is to create more available channels in congested frequency bands.

Frequencies affected by the narrowbanding mandate run from 150 MHz to 512 MHz.[1] This range includes the very popular bands known as VHF and UHF. If local law enforcement, fire, or emergency medical services agencies use VHF or UHF frequencies, these agencies are required to modify their radio systems, as needed, to comply with the FCC narrowbanding mandate.

However, it is not only public safety radios affected by this mandate. Radio systems used by local transit systems, public works departments, code enforcement agencies, and many other users will all be affected if they use VHF or UHF frequencies. In addition, "non-voice" radio systems used by local agencies may be included. These include water or waste water telemetry (**supervisory control and data acquisition** [SCADA]) systems and automatic meter reading systems. Since this mandate affects various types of public safety and government agencies, ensuring timely compliance must be a priority of local governments.

The effort by the FCC to create additional channels by narrowing spectrum use began in the mid-1990s. This is not a new mandate, by any means and many jurisdictions already meet narrowbanding requirements. In fact, every two-way radio approved for manufacture by the FCC since 1997 is already capable of operating in a narrowband mode. If the radios used by your employees are of this newer vintage, they may only need a low-cost modification known as re-programming. This software change does not involve physical changes to the radio, which will provide further cost savings.

Unfortunately though, many agencies still use older radios that are incapable of moving to a narrowband mode. These radios will have to be replaced. This replacement may include the portable radios carried by public safety personnel, the radios mounted in their vehicles, and the base station or repeater equipment housed at fixed tower locations. And don't forget the pagers used by many fire departments to alert personnel to an emergency

[1] There are a few specific frequencies not affected by narrowbanding, but very few local governments use them.

situation. Needless to say, the changes required by the narrowbanding mandate are far reaching.

As a leader in your municipality, you should determine if the FCC's narrowbanding mandate affects any of your radio operations. Here are some basic steps to take:

- Consult your public safety leadership and those who maintain your radio systems. Remember to consider "non-voice" radios when reviewing the status of your local radio systems.
- Determine if your system needs re-programming or full replacement.
- Consider available options to meet the narrowbanding mandate. These include:
  - Continuing to use analog systems in a narrowband mode
  - Moving to digital radio systems
  - Moving to another frequency band such as 700 or 800 MHz

  Each option has plusses and minuses. You'll want to get unbiased and competent advice before making these decisions.
- Collaborate with neighboring communities to determine their narrowbanding plans. Migrate to narrowbanding in concert with your neighbors in order to assure uninterrupted radio interoperability.
- Consider that narrowbanding may cause a slight decrease in the level of system coverage. Conduct a system coverage analysis to determine if there will be a slight decrease in your radio system's level of coverage. Prepare to add towers or other infrastructure to your system if additional coverage is needed.
- Modify your FCC licenses to show the new narrowband emission.
- Develop a realistic timeline as well as budget of the costs involved. Older systems may need to be completely replaced.

While some grant funding is available to help with costs associated with narrowbanding, the wise local government leader will plan to make the transition regardless of grant funds. The bottom line is that narrowbanding is mandatory. The FCC, as of January 1, 2013, will prohibit operation of VHF and UHF radio systems in the current wideband mode. Substantial fines can be imposed for violation. Non-compliant radio systems run the real possibility that they will cause harmful interference to nearby narrowband systems after that date. No one wants to be in that position, so the best course is to make sure that your municipality is ready—even if this means devoting funds from the local budget.

The FCC recently made it clear that the January 1, 2013, deadline is firm. The time to act is now.

For more information, see the following sites:
www.fcc.gov/narrowbanding
http://www.npstc.org/narrowbanding.jsp
http://www.IMSAsafety.org